

## **REMARKS/ARGUMENTS**

Reconsideration of the application as amended is respectfully requested.

### **Status of Claims**

Claims 1, 3, 4, 6-8 and 15 are now pending in the application, with claim 1 being the only independent claim. Claim 1 has been amended to recite the limitation that “each dot diameter formed on the recording medium is from 50 to 200  $\mu\text{m}$ ”. Support for such amendment can be found on page 45, third paragraph of the specification. In addition, applicant has made a number of editorial changes to claims 1, 3, 6 and 15. No new matter has been added.

### **Overview of the Office Action**

Claims 6 and 15 stand objected to because they recite the same limitations.

Claims 1, 3, 4, 6-8 and 15 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,193,345 (*Feinn*) in view of U.S. Patent No. 6,534,128 (*Carlson*).

### **Amendments Addressing Informalities**

Claim 15 has been amended to depend from claim 4. Claims 6 and 15 now have different dependencies. In view of this, withdrawal of the objection to claims 6 and 15 is respectfully requested.

### **Summary of Subject Matter Disclosed in the Specification**

The following descriptive details are based on the specification. They are provided only for the convenience of the Examiner as part of the discussion presented herein, and are not intended to argue limitations which are unclaimed.

The specification discloses an ink jet printer, an image recording method, ink for the ink jet printer and a recording head, wherein a high quality image is formed by jetting ink in appropriately-small liquid quantities without unevenly concentrating the jetted ink and without lowering the quality of printed characters due to clogging of the nozzle openings of the recording head (see paragraph [0010] of the published specification).

The jetting opening of each nozzle, from which the ink is jetted, has a diameter equal to or more than 12  $\mu\text{m}$  and not more than 22  $\mu\text{m}$  (see paragraphs [0016], [0090] and [0091] of the published specification), and the ink substantially includes no volatile component (see paragraph [0102] of the published specification).

The volume of a drop of ink jetted from the nozzle is not less than 1 pico-liter and not more than 6 pico-liter. As a result, the diameter of a dot formed by jetted ink on a recording medium can be minimized to be in the range of 50 to 200  $\mu\text{m}$ , and a high definition image can be printed at proper ink concentrations (see paragraphs [0018], [0019], [0142] and [0143] of the published specification).

The viscosity of the ink is not less than 20 mPa·s and not more than 200 mPa·s at 25 °C, and the viscosity of the ink is not less than 8 mPa·s and not more than 30 mPa·s when the ink is jetted from the nozzles. As a result, after receiving the jetted ink on the recording medium, the ink can stick to the recording medium and can be appropriately leveled on the recording medium. Consequently, a high quality image can be formed, while the shape of each ink dot formed by the

jetted ink on the recording medium can be easily controlled, and the image formed on the recording medium can be greatly enhanced. In addition, because viscosity of the ink is equal to or more than 8 mPa·s and not more than 30 mPa·s when the ink is jetted, clogging of the jetting openings can be prevented, and the ink can be smoothly jetted. As a result, it is possible to form a high quality image at a high level of efficiency (see paragraphs [0031] to [0034], [0103] and [0104] of the published specification).

## **Argument**

### **Independent Claim 1**

Applicant respectfully submits that claim 1, as amended, is patentable over *Feinn* in view of *Carlson* because the combination of *Feinn* and *Carlson* fails to teach or suggest all of the limitations of claim 1.

In *Feinn*, the diameter of the jetting opening of each nozzle is disclosed. Further, *Feinn* discloses that a volume of a drop of the jetted ink is 1pl to 6pl. However, the viscosity of the ink is not disclosed. Further, and of particular significance, the dot diameter formed on the record medium is not disclosed.

In *Carlson*, the viscosity of the ink is disclosed. However, in *Carlson*, the diameter of the jetting opening of the head is not disclosed. It is also not disclosed that extremely small drops (for example, 1pl to 6pl) of ink are jetted. Further, and of particular significance, the dot diameter formed on the record medium is not disclosed.

The combination of *Feinn* and *Carlson* fails to teach or suggest the limitation that “each dot diameter formed on the recording medium is from 50 to 200  $\mu\text{m}$ ”. Neither *Feinn* nor *Carlson*, nor any of the other applied references, discusses or suggests the diameter size of the dot formed on a recording medium to be from 50 to 200  $\mu\text{m}$ .

In view of the foregoing, withdrawal of the §103(a) rejection of claim 1 is respectfully requested.

#### Dependent Claims 3, 4, 6-8 and 15

Claims 3, 4, 6-8 and 15 depend, either directly or indirectly, from independent claim 1 and, thus, each is allowable therewith.

In addition, these claims include features which serve to even more clearly distinguish the claimed invention over the prior art of record.

#### Conclusion

Applicant respectfully submits that the amendments to claims 1, 3, 6 and 15 do not raise any new issues that would require further consideration and/or search by the Examiner. Therefore, applicant respectfully requests entry of this Amendment and submits that the application is in condition for allowance, and such action is respectfully requested.

Should the Examiner have any comments, questions, suggestions or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

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